

ABSTRACT

Methods and apparatus are presented for producing carbon black on a substrate. One preferred method includes providing a head assembly including a nozzle, the nozzle including a first injector for injecting a gas such as acetylene, and
5 a second injector for injecting a mixture of a fuel and an oxidant to produce a pilot flame. The head assembly is indexed over a substrate on which is to be deposited carbon black. The acetylene is injected through the first injector, then through a pilot flame emitted from one or more second injectors, and finally toward a substrate to be coated with carbon black, but only when a deposit of carbon black is desired.

10 The method includes ceasing the flow of acetylene, indexing the head assembly away from the substrate on which was just deposited the carbon black after a carbon black deposition sequence, and ceasing fuel gas and oxidant gas flows through the second injector. Just before the next carbon black deposition is required, the fuel and oxidant are initiated and ignited with an ignition source and accompanying
15 automatic electronic ignition, thus recreating the pilot flame(s). Indexing the head assembly toward a surface to be coated with carbon black, and initiating a flow of acetylene when a layer of carbon black is desired, completes a cycle.

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